WHAT IS CLAIMED IS:

1. A coolant comprising:

a first component; and

a second component dispersed in the first component, the second component increases in temperature by a lesser amount than the first component when a predetermined amount of heat is absorbed by the first and second components, respectively.

2. The coolant according to claim 1, wherein the second component changes phase in order to absorb the predetermined amount of heat.

3. The coolant according to claim 2, wherein the second component changes from a solid phase to a liquid phase in order to absorb the predetermined amount of heat.

4. The coolant according to claim 2, wherein second component is the same substance as the first component, and is provided in a different phase than the first component.

5. The coolant according to claim 2, wherein the second component is a different substance than the first component and is provided in a phase that is different from a phase of the first component.

6. The coolant according to claim 2, further comprising holding members, wherein the second component is held by the holding members.

7. The coolant according to claim 2, wherein the second component absorbs the predetermined amount of heat without changing temperature.

8. The coolant according to claim 1, wherein the second component has a higher heat capacity than the first component.

9. The coolant according to claim 8, wherein the second component does not change phase when the second component absorbs the predetermined amount of heat.

10. The coolant according to claim 8, further comprising holding members, wherein the second component is held by the holding members.

11. The coolant according to claim 8, wherein the second component is a gel.

12. The coolant according to claim 1, further comprising holding members, wherein the second component is held by the holding members.

13. The coolant according to claim 12, wherein the holding members are hollow with the second component located therein.

14. The coolant according to claim 12, wherein the holding members contain grooves with the second component located in the grooves.

15. The coolant according to claim 12, wherein the holding members contain pores with the second component located in the pores.

16. The coolant according to claim 12, wherein the holding members are formed of magnetic bodies.

17. The coolant according to claim 2, wherein the second component changes from a liquid phase to a gas phase in order to absorb the predetermined amount of heat.

18. A linear motor device comprising:

a housing with an internal space;

a coil arranged in the internal space of the housing;

a cooling system which cools the coil using the coolant of claim 1, wherein the cooling system comprises:

a flow line extending from an exit of the housing to an entrance of the housing and through which the coolant flows;

a mixing device in the flow line and which mixes the second component with the first component; and

a pump which supplies the coolant mixed by the mixing device to the internal space of the housing.

19. The linear motor device according to claim 18, wherein the mixing device sets a mixing ratio of the first component to the second component according to an amount of heat generated by the coil.

20. The linear motor device according to claim 18, further comprising:

a cooling device that removes heat from at least the second component prior to entry of the coolant into the internal space of the housing.

21. A stage device provided with the linear motor device according to claim 18.

22. An exposure apparatus provided with a mask stage for holding a mask and a substrate stage for supporting a substrate, wherein the stage device according to claim 21 is used for at least one of the mask stage and the substrate stage.

23. A device manufactured by the exposure apparatus according to claim 22.

24. A method of cooling an object comprising:

circulating a coolant by the object, wherein the coolant includes a first component and a second component dispersed in the first component, the second component increases in temperature by a lesser amount than the first component when a predetermined amount of heat is absorbed by the first and second components, respectively.

25. The method according to claim 24, further comprising removing heat from at least the second component after the coolant has been circulated past the object, so as to maintain the coolant at a predetermined temperature.

26. The method according to claim 25, wherein the second component changes phase in order to absorb the predetermined amount of heat, and the step of removing heat from the second component changes the phase of the second component.

27. The method according to claim 26, wherein the second component changes from a solid phase to a liquid phase in order to absorb the predetermined amount of heat, and the step of removing heat from the second component changes the second component back into the solid phase.

28. The method according to claim 26, wherein second component is the same substance as the first component, and is provided in a different phase than the first component after the step of removing heat from the second component is performed.

29. The method according to claim 26, wherein the second component is a different substance than the first component and is provided in a phase that is different from a phase of the first component after the step of removing heat from the second component is performed.

30. The method according to claim 26, wherein the second component is held by holding members.

31. The method according to claim 26, wherein the second component absorbs the predetermined amount of heat without changing temperature.

32. The method according to claim 24, wherein the second component has a higher heat capacity than the first component.

33. The method according to claim 32, wherein the second component does not change phase when the second component absorbs the predetermined amount of heat.

34. The method according to claim 32, wherein the second component is held by holding members.

35. The method according to claim 32, wherein the second component is a gel.

36. The method according to claim 24, wherein the second component is held by holding members.

37. The method according to claim 36, wherein the holding members are hollow with the second component located therein.

38. The method according to claim 36, wherein the holding members contain grooves with the second component located in the grooves.

39. The method according to claim 36, wherein the holding members contain pores with the second component located in the pores.

40. The method according to claim 24, wherein the object to be cooled is a coil of a linear motor device having a housing with an internal space in which the coil is disposed, and a cooling system which cools the coil by circulating the coolant past the coil, the method further comprising:

mixing the second component with the first component; and

supplying the mixed coolant to the internal space of the housing using a pump.

41. The method according to claim 40, wherein the mixing includes setting a mixing ratio of the first component to the second component according to an amount of heat generated by the coil.

42. The method according to claim 40, wherein the linear motor device is part of a stage device.

43. The method according to claim 42, wherein the stage device is part of an exposure apparatus provided with a mask stage for holding a mask and a substrate stage for supporting a substrate, wherein the stage device is used for at least one of the mask stage and the substrate stage.

44. A cooling device, comprising:

a holding member, the holding member having at least one of a hollow part, a groove, and a pore; and

a cooling substance which absorbs an amount of heat due to a phase change between at least two of a solid phase, a liquid phase, and a gas phase, wherein the cooling substance is held in the at least one of the hollow part, the groove and the pore of the holding member.

45. The cooling device according to claim 44, wherein an internal pressure of the holding member is set based on a target phase change temperature of the cooling substance.

46. The cooling device according to claim 44, wherein the holding member is a magnetic body.

47. The cooling device according to claim 44, wherein the cooling substance is a gel.

48. A coolant, wherein the cooling device according to claim 44 is dispersed in a specified liquid.

49. The coolant according to claim 48, wherein the specified liquid is a different substance than the cooling substance.

50. The coolant according to claim 48, wherein the specified liquid is a same substance as the cooling substance.

51. The cooling device according to claim 44, wherein the holding member is provided with an internal space for holding at least the cooling substance, and a through-hole which connects an outside of the holding member and the internal space.

52. The cooling device according to claim 51, wherein the internal space is a hollow part formed inside the holding member and the cooling substance is held in the hollow part.

53. The cooling device according to claim 51, wherein the holding member is formed of a porous material, wherein the internal space is the space within at least one pore of the porous holding member and the holding member holds the cooling substance inside the pores.

54. A method of cooling an object, comprising:

holding a cooling substance with a holding member; and

dispersing the holding member in a specified liquid, wherein the cooling substance absorbs an amount of heat from a surrounding by undergoing a phase change between at least two of a solid phase, a liquid phase, and a gas phase to cool the object.

55. A method of cooling an object, comprising:

cooling the object by exposing the object to a coolant that is comprised of a specified liquid in which holding members are dispersed, the holding members having an internal space that is in communication with an outside of the holding members, wherein the cooling substance absorbs an amount of heat from the object by undergoing a phase change between at least two of a solid phase, a liquid phase, and a gas phase.

56. The cooling method according to claim 55, wherein the cooling substance exists in at least two different ones of the solid state, the liquid state, and the gaseous state.

57. The cooling method according to claim 56, wherein the specified liquid is the cooling substance in the liquid state and the cooling substance held by the holding member is the cooling substance in the solid state.

58. The cooling method according to claim 56, wherein the coolant absorbs heat of the object without increasing a temperature of the cooling substance when the cooling substance in the solid state is changed to a liquid state.

59. A cooling device which cools an object by using a coolant including a cooling substance, comprising:

a mixing device which mixes the cooling substance in a liquid state with the cooling substance in a solid state; and

a supply device which supplies the coolant generated in the mixing device to the object.

60. The cooling device according to claim 59, further comprising:

a solidifying device which solidifies the cooling substance from the liquid state to the solid state.

61. A cooling device which cools an object by using a coolant in which holding members filled with a cooling substance are dispersed in a specified liquid, comprising:

a mixing device which mixes the specified liquid with the holding members; and

a supply device which supplies the coolant generated in the mixing device to the object.

62. The cooling device according to claim 61, further comprising:

a collecting device which collects the holding members.

63. The cooling device according to claim 61, further comprising:

a solidifying device which solidifies the cooling substance present in the holding members.

64. The cooling device according to claim 62, wherein the collecting device includes a filter.

65. The cooling device according to claim 61, further comprising:

an agitating device which agitates the coolant which is supplied by the supply device.

66. A linear motor device having a housing with an internal space and a coil arranged in the internal space, comprising:

a cooling device which cools the coil by using a coolant including a cooling substance, wherein the cooling device comprises:

a mixing device which mixes the cooling substance in a liquid state with the cooling substance in a solid state; and

a supply device which supplies the coolant generated in the mixing device to the internal space.

67. The linear motor device according to claim 66, wherein the mixing device sets a mixing ratio of the cooling substance in the liquid state and the cooling substance in the solid state according to an amount of heat generated by the coil.

68. A linear motor device having a housing with an internal space and a coil arranged in the internal space, comprising:

a cooling device which cools the coil by using a coolant in which a holding member holding a cooling substance is dispersed within a specified liquid,

wherein the cooling device comprises:

a mixing device which mixes the specified liquid with the holding member, and

a supply device which supplies the coolant generated by the mixing device to the coil.

69. The linear motor device according to claim 68, further comprising:

a chilling device which removes heat from the cooling substance filled in the holding member.

70. A stage device provided with a linear motor device according to claim 68.

71. An exposure apparatus provided with a mask stage holding a mask and a substrate stage supporting a substrate, wherein the stage device according to claim 70 is used for at least one of the mask stage and the substrate stage.